

WHAT IS CLAIMED IS:

1. An isolated polynucleotide that encodes a polypeptide comprising a sequence of amino acid residues that is at least 90% identical to an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe); and

(b) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 1 (Met), to amino acid number 223 (Phe).

2. An isolated polynucleotide molecule selected from the group consisting of:

(a) polynucleotide molecules comprising a nucleotide sequence as shown in SEQ ID NO:1 from nucleotide 285 to nucleotide 890;

(b) polynucleotide molecules comprising a nucleotide sequence as shown in SEQ ID NO:1 from nucleotide 222 to nucleotide 890; and

(c) polynucleotide molecules complementary to (a) or (b).

3. An isolated polynucleotide sequence according to claim 1, wherein the polynucleotide comprises nucleotide 1 to nucleotide 669 of SEQ ID NO:3.

4. An isolated polynucleotide according to claim 1, wherein the polypeptide consists of a sequence of amino acid residues that is at least 90% identical to an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe).

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5. An isolated polynucleotide according to claim 4, wherein the z219a polypeptide consists of a sequence of amino acid residues as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe).

6. The isolated polynucleotide molecule of claim 1, wherein the polynucleotide encodes a polypeptide that contains motifs 1, 2, 3, 4 and 5 spaced apart from N-terminus to C-terminus in a configuration M1-{25-26}-M2-{15}-M3-{11}-M4-{34-36}-M5.

7. An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding a z219a polypeptide that is at least 90% identical to an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe); and

a transcription terminator,

wherein the promoter is operably linked to the DNA segment, and the DNA segment is operably linked to the transcription terminator.

8. An expression vector according to claim 7, further comprising a secretory signal sequence operably linked to the DNA segment.

9. A cultured cell into which has been introduced an expression vector according to claim 7, wherein the cell expresses the polypeptide encoded by the DNA segment.

10. A DNA construct encoding a fusion protein, the DNA construct comprising:

a first DNA segment encoding a polypeptide that is at least 90% identical to a sequence of amino acid residues 1 (Met) through 21 (Met) of SEQ ID NO:2; and

a second DNA segment encoding an additional polypeptide,

wherein the first and second DNA segments are connected in-frame; and

encode the fusion protein.

11. An isolated polypeptide comprising a sequence of amino acid residues that is at least 90% identical to an amino acid sequence selected from the group consisting of:

(a) polypeptide molecules comprising an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe) of SEQ ID NO:2; and

(b) polypeptide molecules comprising an amino acid sequence as shown in SEQ ID NO:2 from amino acid residue number 1 (Met) to amino acid residue number 223 (Phe).

12. An isolated polypeptide according to claim 11, wherein the polypeptide consists of a sequence of amino acid residues that is at least 90% identical to an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe).

13. An isolated polypeptide according to claim 12, wherein the sequence of amino acid residues is as shown in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe).

14. The isolated polypeptide of claim 11, wherein the polypeptide molecule encodes motifs 1, 2, 3, 4 and 5 spaced apart from N-terminus to C-terminus in a configuration M1-{25-26}-M2-{15}-M3-{11}-M4-{34-36}-M5.

15. A method of producing a z219c polypeptide comprising:

culturing a cell according to claim 9; and
isolating the z219c polypeptide produced by the cell.

16. A method of producing an antibody to z219c polypeptide comprising:

inoculating an animal with a polypeptide selected from the group consisting of:

(a) a polypeptide consisting of 9 to 210 amino acids, wherein the polypeptide is at least 90% identical to a contiguous sequence of amino acids in SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe);

(b) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from amino acid number 22 (Phe) to amino acid number 88 (Ile);

(c) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from amino acid number 23 (Phe), to amino acid number 223 (Phe);

(d) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from amino acid number 51 (Lys) to amino acid number 124 (Asp);

(e) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from amino acid number 125 (Val) to amino acid number 202 (Thr);

(f) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from amino acid 203 (Phe) to amino acid number 223 (Phe); and

wherein the polypeptide elicits an immune response in the animal to produce the antibody; and

isolating the antibody from the animal.

17. An antibody produced by the method of claim 16, which binds to a z219c polypeptide.

18. The antibody of claim 17, wherein the antibody is a monoclonal antibody.

19. An antibody which binds to a polypeptide of claim 11.

20. A method of detecting, in a test sample, the presence of an antagonist of z219c protein activity, comprising:

transfecting a z219c-responsive cell, with a reporter gene construct that is responsive to a z219c-stimulated cellular pathway; and

producing a z219c polypeptide by the method of claim 15; and

adding the z219c polypeptide to the cell, in the presence and absence of a test sample; and

comparing levels of response to the z219c polypeptide, in the presence and absence of the test sample, by a biological or biochemical assay; and

determining from the comparison, the presence of the antagonist of z219c activity in the test sample.

21. A method of detecting, in a test sample, the presence of an agonist of z219c protein activity, comprising:

transfecting a z219c-responsive cell, with a reporter gene construct that is responsive to a z219c-stimulated cellular pathway; and

adding a test sample; and

comparing levels of response in the presence and absence of the test sample, by a biological or biochemical assay; and

determining from the comparison, the presence of the agonist of z219c activity in the test sample.

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